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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Yutaka Matsuoka

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08/21/2009

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EXAMINER

KASHNIKOW, ERIK

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

08/21/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

Office Action Summary	Application No. 10/524,680	Applicant(s) MATSUOKA ET AL.	
	Examiner ERIK KASHNIKOW	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 6-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 6-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/23/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. Claims 1, 3, 6-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakaya et al. (US 5,942,298) in view of Gregorich et al. (Can. J Soil Sci **68**: 395-403) with Encyclopedia Britannica (<http://www.britannica.com/EBchecked/topic/288836/inorganic-soil>) and Easton et al. (Trans. Faraday. Soc. 1952, 48, 796-801) used for evidentiary value.
2. In regards to claims 1 and 7 Sakaya et al. teach films contain inorganic layered compositions (column 1 lines 64-67), and specifically mentions clay as the layered inorganic material (column 23 line 56). Sakaya et al. also teach the composition also comprises a resin (column 4 lines 31-32) of which polyvinyl alcohols and ethylene vinyl alcohols are preferred embodiments (column 4 lines 56-58).
3. In regards to claim 2 and 13 Sakaya et al. teach the use of a high speed stirrer disperser (column 3 lines 39-42).
4. In regards to claim 6 Sakaya et al. further teach that the concentration of the inorganic layer compound and the resin is 4-15 wt % (column 5 lines 37-39). Examiner is aware that the reference states organic layer compound at the lines cited, however continued references are made to inorganic layered compounds throughout the reference and not to organic layered compounds and therefore it is Examiners opinion that this is a spelling error in the reference. Sakaya et al. further teaches that the mass

ratio of the inorganic layered compound and the gas barrier resin is approximately 4-90% which encompasses applicants range (claim 10).

5. In regards to claim 8 Sakaya teach that the base material of their invention can be used including polyolefins and polyesters (column 8 lines 1-8). Sakaya et al. teach a coating thickness of 10 to less than 1 μ m (column 7 lines 26-27), which is within Applicant's range.

6. In regards to claims 9 and 10 Sakaya teach thicknesses above and below applicants defined thickness (sheets \geq 25 μ m > films) for films and sheets (column 8 lines 32-33). Sakaya et al. also teach that it is well known in the art at the time of the invention to make packages for food items (column 1 lines 13-61).

7. In regards to claim 11 Sakaya et al. are silent regarding bottles however they do teach containers for carbonated drinks, and the most common container for carbonated drinks and an obvious variant of "container for carbonated drinks" is a bottle (column 1 line 36).

8. While Sakaya et al. teach the containers made from a dispersed layered inorganic compound composition, they are silent regarding the use of hydrogen peroxide in the dispersion process.

9. As stated above Gregorich et al. teach dispersion of an inorganic layered composition, in this case clay and soil is dispersed using hydrogen peroxide in a dispersion medium (page 397 first column).

10. In regards to claims 2 and 13, it is shown by Encyclopedia Britannica that the bulk of soil samples are inorganic material, therefore Gregorich et al. teach an almost

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1/1 ratio of inorganic layer and hydrogen peroxide when the soil is 100% organic material and a 2/1 ratio when the organic material is approximately 54% (using density of 20% hydrogen peroxide (1.0737 as determined by Easton et al.) and page 396 second column to 397 first column of Gregorich et al. to obtain this result. It is pointed out that when assumed 100% of the 15g soil sample is inorganic material the ratio is approximately 1:1, when 54% of the soil is inorganic the ratio is then 2:1). While Gregorich et al. teach that the hydrogen peroxide method is inferior, they do mention that "[t]he hydrogen peroxide is effective however, in disrupting silt sized aggregates which caused most of the increases in the clay sized materials with increased ultrasonic energy". This would give one of ordinary skill in the art at the time of the invention motivation to combine clay and hydrogen peroxide with a more effective stirring or shaking device such as a high speed stirrer or an ultrasonic dispersion device in order to prevent the formation of aggregates.

11. Given that Sakaya et al. in view of Gregorich et al. disclose process as presently claimed including mixing peroxide and inorganic layered compound in dispersion medium which is then treated in high speed stirrer, it is clear that the process would intrinsically distribute cleaved inorganic layered compound as presently claimed.

12. One of ordinary skill in the art at the time of the invention would be motivated to combine the dispersion process of Gregorich et al. with the invention of Sakaya et al. because the films which have gas barrier properties against oxygen and organic solvent vapors and offer good resistance to scratches on the base of the film of Sakaya et al. are formed from a dispersion process that would benefit from the complete dispersion

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with no evidence of redistribution or the formation of aggregates of the dispersion process of Gregorich et al. (page 395 top of page).

13. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakaya et al. (US 5,942,298) in view of Gregorich et al. (Can. J Soil Sci **68**: 395-403) in further view of Uchida et al (US 6,569,533).

14. As stated above Gregorich et al. and Sakaya et al. teach a film which includes an inorganic layer dispersion. However they are silent regarding paper as a base layer.

15. Uchida et al. teach a polyurethane resin with excellent gas barrier properties (column 2 lines 28-35).

16. In regards to claim 12 Uchida et al. teach a gas barrier composite film comprising a base film layer formed with at least one member selected from the group consisting of a plastic, a paper, a fabric, a metal and a ceramic, an inorganic layer and a resin layer formed from an aqueous dispersion wherein the inorganic layer is formed on the base layer, and further the resin layer is formed on the inorganic layer (claim 10).

17. Examiner notes that Sakaya et al. teach away from using products that are not transparent, however if one did not need the film to be transparent Uchida et al. teach that paper could be used as the base of the film, and that it is known in the art to use paper as the bases for films.

18. One of ordinary skill in the art at the time of the invention would be motivated to modify the inventions of Gregorich et al. and Sakaya et al. with that of Uchida et al. because the gas barrier films of Gregorich et al. and Sakaya et al. could benefit from the

barrier properties of Uchida et al against water vapor and aromatics (column 1 lines 5-10).

Response to Arguments

19. In regards to Applicant's arguments that Gregorich et al. teach away from using hydrogen peroxide, Examiner respectfully disagrees with Applicant's interpretation of the first column on page 400 of the Gregorich reference. It is Examiner's opinion that Gregorich et al. teach that hydrogen peroxide was not as effective destroying the completely organic matter, and therefore if there were no organic matter the hydrogen peroxide would be effective. Gregorich et al. teach that microaggregates consist of clay minerals and humified organic material (page 396), Gregorich et al. further teach that hydrogen peroxide is effective in dispersing silt sized aggregates, which would include both the clay minerals and the organic material. The fact that it is hypothesized that the reason hydrogen peroxide is not as effective with sand sized microaggregates is due to the failure of peroxide to destroy organic matter within the aggregates does not mean that the hydrogen peroxide, which was effective in dispersing the clay materials in the silt sized aggregates, has lost its effectiveness at the sand sized aggregates level.

Conclusion

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIK KASHNIKOW whose telephone number is (571)270-3475. The examiner can normally be reached on Monday-Friday 7:30-5:00PM EST (Second Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erik Kashnikow
Examiner
Art Unit 1794

/Rena L. Dye/
Supervisory Patent Examiner, Art Unit 1794